

The diagram illustrates a system architecture with two units, Unit A and Unit B. Each unit contains a Link Manager (101) and a Baseband Transceiver (103). The Baseband Transceiver (103) is composed of a Baseband Transmitter and a Baseband Receiver (105). Unit A's Link Manager (101) is connected to its Baseband Transceiver (103). Unit B's Link Manager (101) is connected to its Baseband Transceiver (103). The Baseband Receiver (105) of Unit A is connected to the Baseband Transmitter (103) of Unit B via a communication line.

FIG. 1

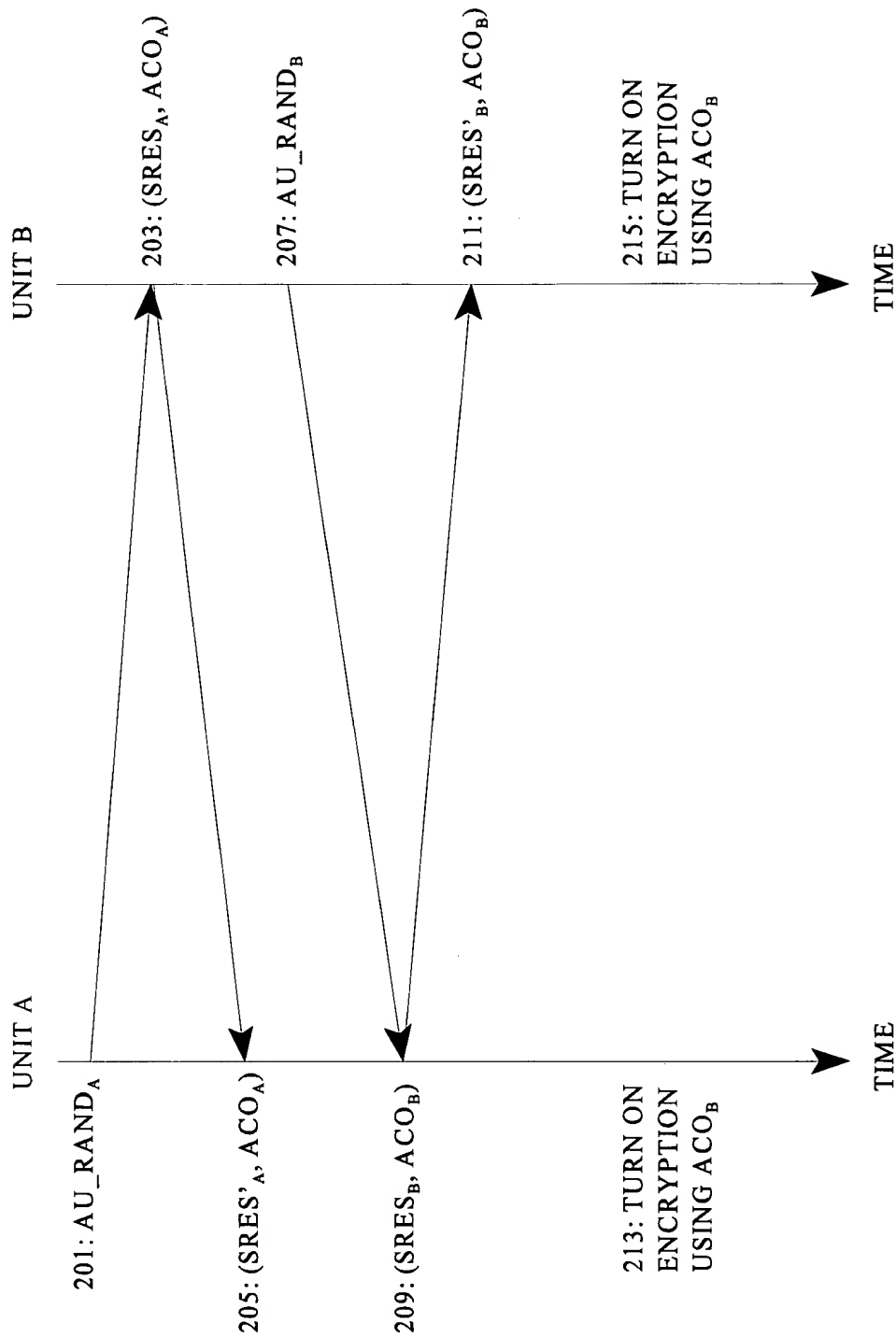


FIG. 2

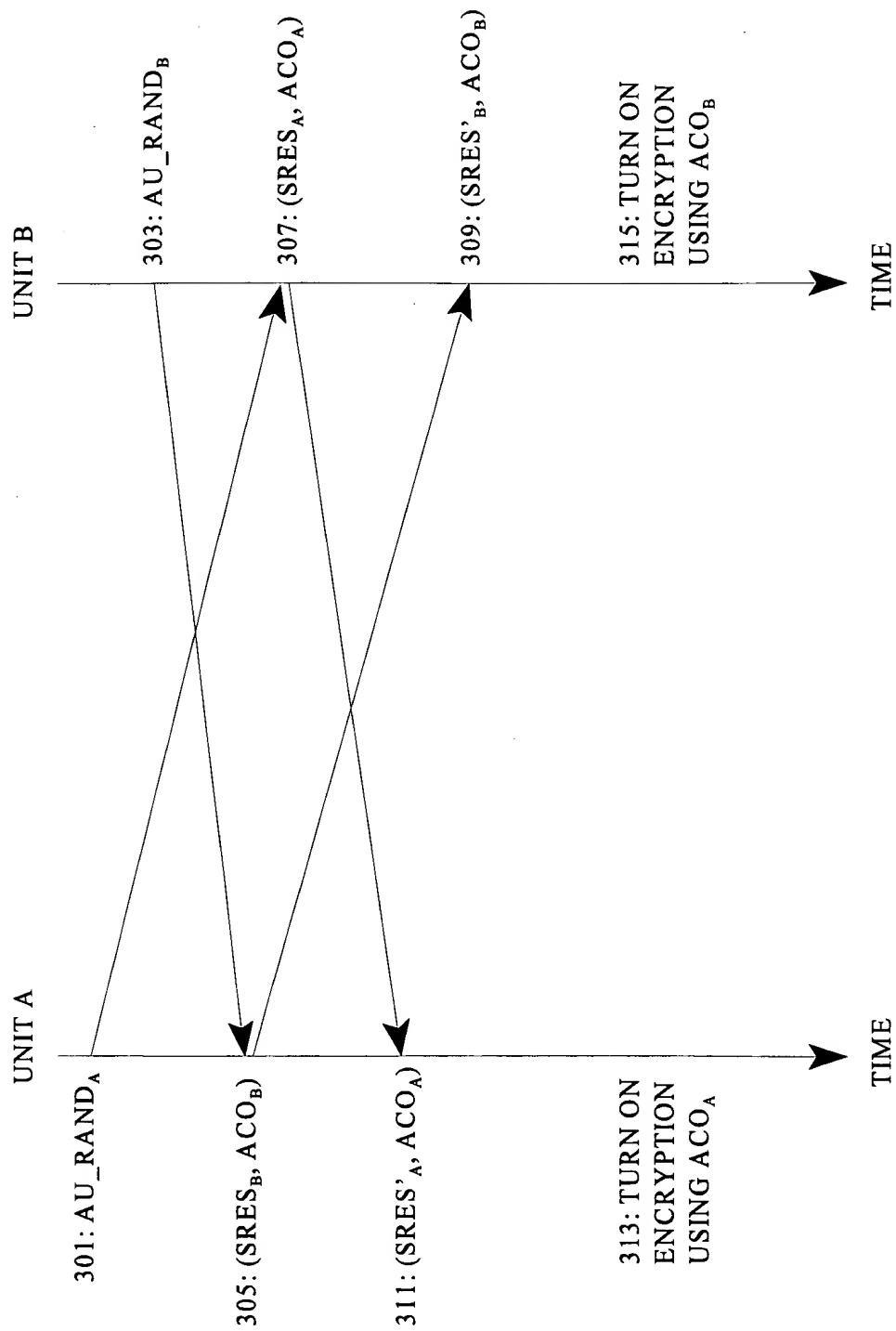


FIG. 3

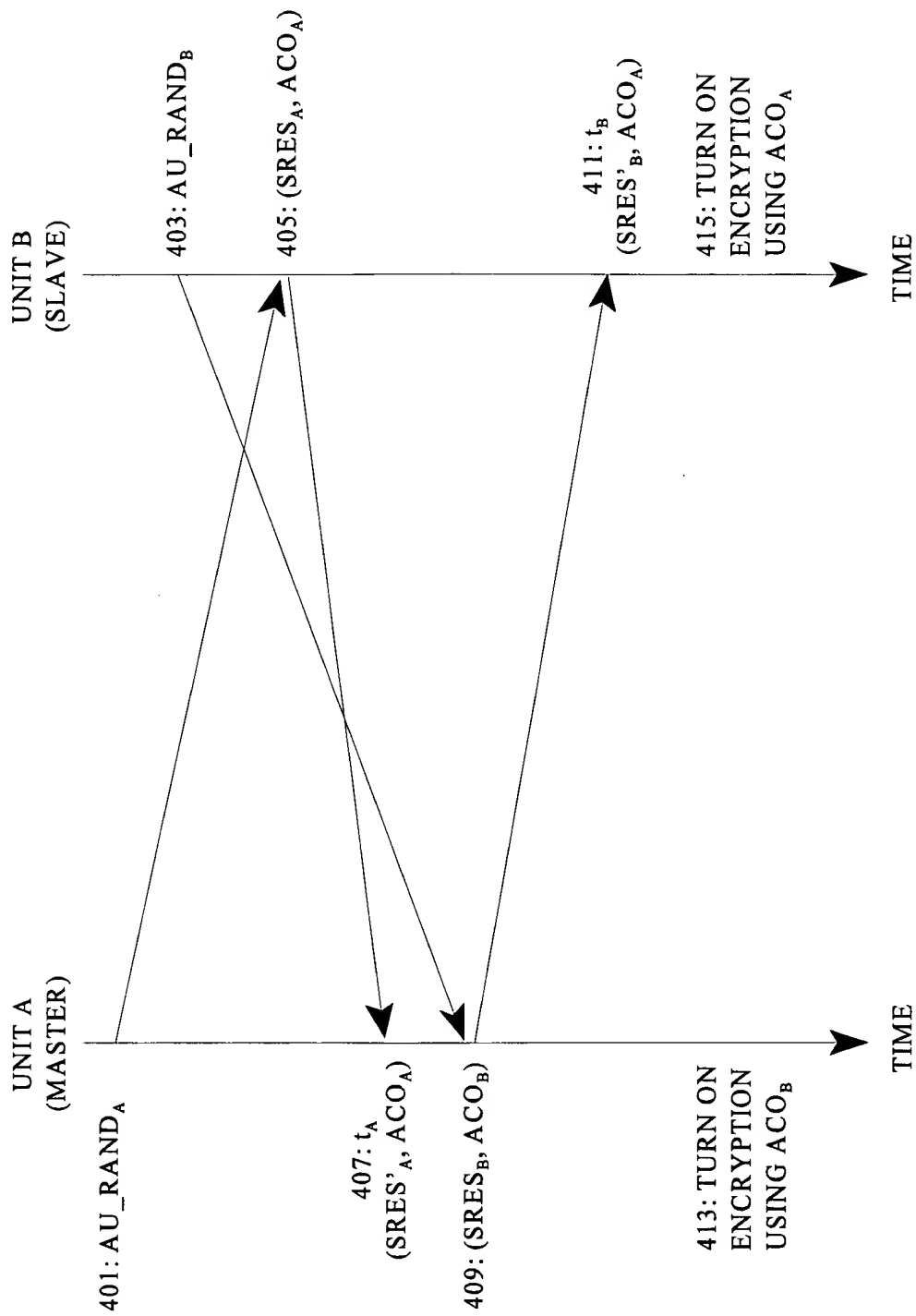


FIG. 4

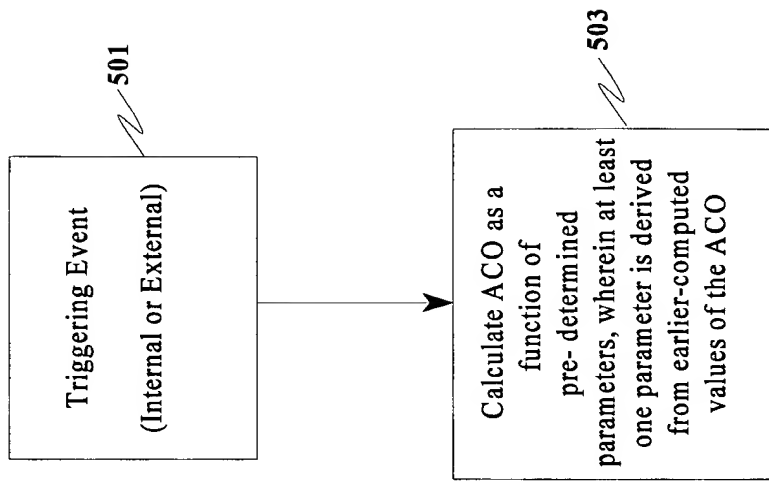


FIG. 5

FIG. 1

UNIT A

UNIT B

TIME

TIME

601: AU RAND_A

603: AU RAND_B

605: (SRES_B, ACO_{m+1})
ACO_{m+1} = f(AU RAND_B, ACO_m)

607: (SRES_A, ACO_{n+1})
ACO_{n+1} = f(AU RAND_A, ACO_n)

609: (SRES', ACO_{n+2})
ACO_{n+2} = f(AU RAND_B, ACO_{n+1})

611: (SRES', ACO_{m+2})
ACO_{m+2} = f(AU RAND_A, ACO_{m+1})

613: TURN ON ENCRYPTION
USING ACO_{m+2} =
f[AU RAND_B, f(AU RAND_A, ACO_m)]

615: TURN ON ENCRYPTION
USING ACO_{n+2} =
f[AU RAND_A, f(AU RAND_B, ACO_n)]

ACO_m is in effect

ACO_n (=ACO_m) is in effect

FIG. 6

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sequenceDiagram
    participant A as UNIT A (MASTER)
    participant B as UNIT B (SLAVE)
    Note over A: ACO_m is in effect
    A->>B: 701: AU RAND_A
    Note over B: 703: AU RAND_B
    B->>A: 705: (SRES_A, ACO_{m+1})  
ACO_{m+1} = f(AU RAND_A, ACO_m)
    Note over A: 707: t_A, (SRES'_A, ACO_{m+1})  
ACO_{m+1} = f(AU RAND_A, ACO_m)
    A->>B: 709: (SRES_B, ACO_{m+2})  
ACO_{m+2} = f(AU RAND_B, ACO_{m+1})
    Note over B: 711: t_B, (SRES'_B, ACO_{n+2})  
ACO_{n+2} = f(AU RAND_B, ACO_{n+1})
    B->>A: 713: TURN ON ENCRYPTION USING  
ACO_{m+2} =  
f[AU RAND_A, f(AU RAND_B, ACO_m)]
    Note over A: 715: TURN ON ENCRYPTION USING  
ACO_{n+2} =  
f[AU RAND_A, f(AU RAND_B, ACO_n)]
  
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The diagram illustrates the interaction between Unit A (Master) and Unit B (Slave) for the generation and encryption of ACO values. The process is as follows:

- Initial State:** Unit A has ACO_m in effect.
- Message 701:** Unit A sends AU_RAND_A to Unit B.
- Message 703:** Unit B generates AU_RAND_B .
- Message 705:** Unit B sends $(SRES_A, ACO_{m+1})$ to Unit A, where $ACO_{m+1} = f(AU_RAND_A, ACO_m)$.
- Message 707:** Unit A has $t_A, (SRES'_A, ACO_{m+1})$ and $ACO_{m+1} = f(AU_RAND_A, ACO_m)$.
- Message 709:** Unit A sends $(SRES_B, ACO_{m+2})$ to Unit B, where $ACO_{m+2} = f(AU_RAND_B, ACO_{m+1})$.
- Message 711:** Unit B has $t_B, (SRES'_B, ACO_{n+2})$ and $ACO_{n+2} = f(AU_RAND_B, ACO_{n+1})$.
- Message 713:** Unit B sends "TURN ON ENCRYPTION USING $ACO_{m+2} = f[AU_RAND_A, f(AU_RAND_B, ACO_m)]$ " to Unit A.
- Message 715:** Unit A has "TURN ON ENCRYPTION USING $ACO_{n+2} = f[AU_RAND_A, f(AU_RAND_B, ACO_n)]$ ".

FIG. 7